netwrix

Netwrix Auditor Add-on for RADIUS Server

Quick-Start Guide

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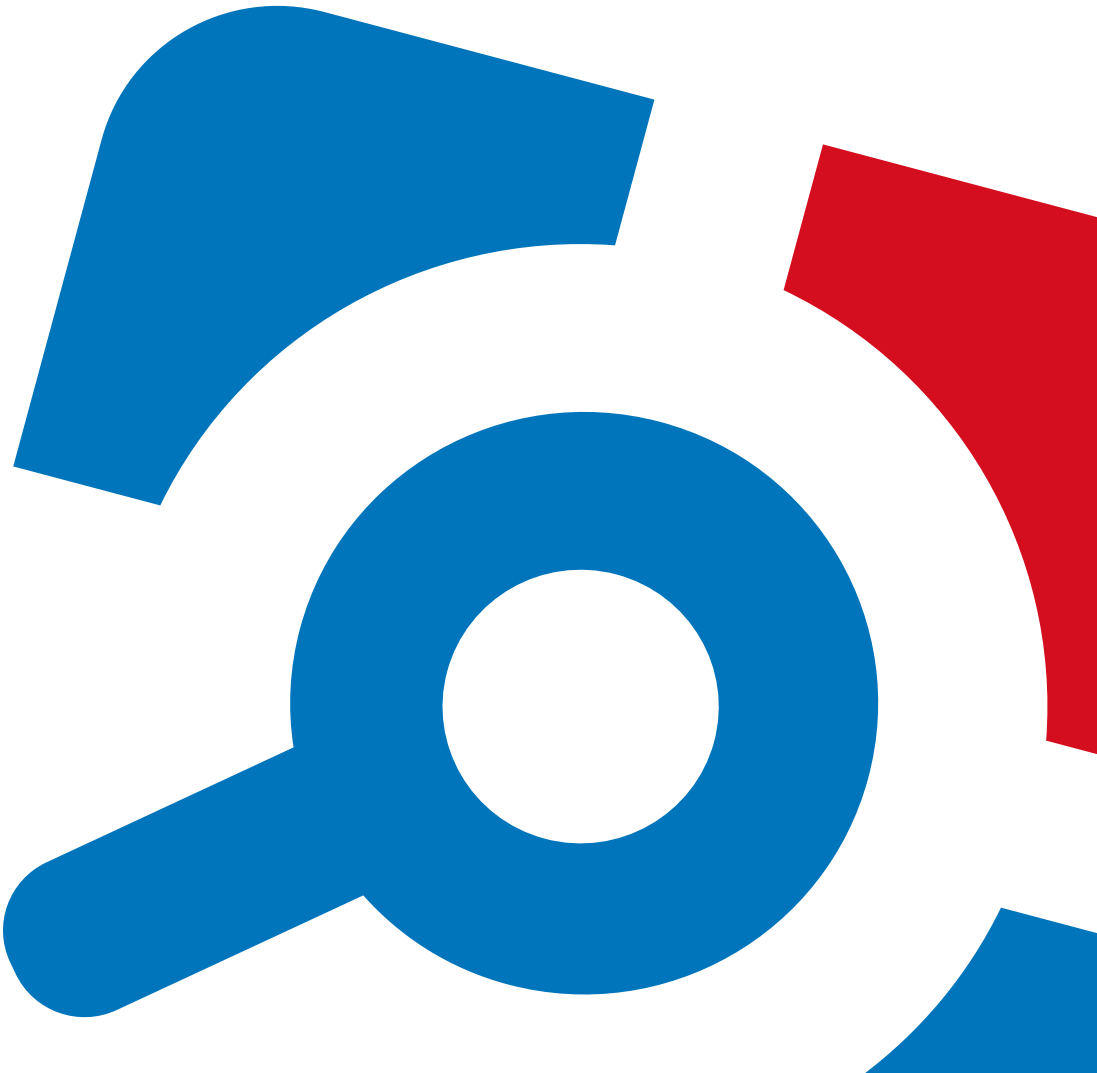

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1. Introduction

This guide is intended for the first-time users of Netwrix Auditor Integration API add-ons. It can be used for evaluation purposes, therefore, it is recommended to read it sequentially, and follow the instructions in the order they are provided. After reading this guide you will be able to:

- Define add-on parameters
- Execute the add-on
- Review results

NOTE: The add-on works only in combination with Netwrix Auditor so this guide covers a basic procedure for running the add-on and assumes that you have Netwrix Auditor installed and configured in your environment. For installation scenarios, data collection options, as well as detailed information on Integration API, refer to:

- Netwrix Auditor Installation and Configuration Guide
- Netwrix Auditor Administration Guide
- Netwrix Auditor Integration API Overview

1.1. Netwrix Auditor Overview

Netwrix Auditor is a visibility platform for user behavior analysis and risk mitigation that enables control over changes, configurations and access in hybrid IT environments to protect data regardless of its location. The platform provides security analytics to detect anomalies in user behavior and investigate threat patterns before a data breach occurs.

Netwrix Auditor includes applications for Active Directory, Azure AD, Exchange, Office 365, Windows file servers, EMC storage devices, NetApp filer appliances, SharePoint, Oracle Database, SQL Server, VMware, and Windows Server. Empowered with a RESTful API and user activity video recording, the platform delivers visibility and control across all of your on-premises or cloud-based IT systems in a unified way.

Major benefits:

- Detect insider threats—on premises and in the cloud
- Pass compliance audits with less effort and expense
- Increase productivity of IT security and operations teams

2. Netwrix Auditor Add-on for RADIUS Server Overview

Netwrix Auditor Add-on for RADIUS Server tracks user and device logon activity on a Windows Server where the Remote Authentication Dial-In User Service (RADIUS) is running.

2.1. RADIUS Protocol

RADIUS is a client-server network protocol that enables secure authentication, authorization, and account management through special network access servers called gateways. The protocol works as follows: When a user tries to access network resources through a gateway that has the RADIUS client component enabled, the gateway sends a request to the RADIUS server. The RADIUS server identifies the user or device and either accepts or rejects the connection request, and then logs the attempt for future reference.

Because it enhances security and scalability, the RADIUS protocol is widely used in enterprise network environments to provide authentication and authorization for a variety of network access servers, such as VPN or dial-in servers and wireless access points. It helps organize and centralize sign-in procedures and improve overall security. In a Windows Server environment, the RADIUS server is provided by the Network Policy Server (NPS).

In addition to providing user authentication and authorization, a RADIUS server can grant or deny access to a connecting device based on network policies. Companies leverage these policies to empower users to connect to the corporate infrastructure using their personal devices, while disallowing potentially vulnerable and unsafe devices to minimize risk.

2.2. Netwrix Auditor Add-on

Regular review of logon activity is essential for gaining complete visibility into your account management procedures and ensuring that all activity is traceable and compliant with your policies. For example, logons from unusual locations or devices can be a sign of user account compromise or identity theft, and an unexpectedly high number of logon failures can indicate an intrusion attempt. Careful review of successful and failed logons from both Active Directory and RADIUS servers helps security operations teams detect these signs and react promptly to security threats.

Netwrix Auditor Add-on for RADIUS Server works in collaboration with Netwrix Auditor for Active Directory, collecting additional data that augments the data collected by Netwrix Auditor. Aggregating data into a single audit trail simplifies logon activity analysis and helps you keep tabs on your IT infrastructure.

Implemented as a PowerShell script, this add-on automates the acquisition of RADIUS logon events and their transition to Netwrix Auditor. All you have to do is provide connection details and schedule the script for execution. Netwrix recommends running this add-on in addition to the Active Directory auditing provided by Netwrix Auditor.

On a high level, the add-on works as follows:

1. The add-on connects to the Security event log on the RADIUS server and collects logon-related events.
2. The add-on processes these events into Netwrix Auditor-compatible format (Activity Records). Each Activity Record contains the user account, logon status, time, and other details. Where applicable, the cause for logon failure and the name of network policy are included in the Activity Record.
3. Using the Netwrix Auditor Integration API, the add-on sends the successful and failed logon events to the Netwrix Auditor server, which writes them to the Long-Term Archive and the Audit Database.

For more information on the structure of the Activity Record and the capabilities of the Netwrix Auditor Integration API, refer to Netwrix Auditor Integration API Overview.

2.3. Compatibility Notice

In Netwrix Auditor 9.0, Netwrix has updated API schemas. The scripts and add-ons designed for Netwrix Auditor 8.0 – 8.5 might become inoperable in Netwrix Auditor 9.6, while new add-ons designed for 9.0 and 9.6 cannot run at Netwrix Auditor 8.0 – 8.5.

Make sure to check your product version, and then review and update your add-ons and scripts leveraging Netwrix Auditor Integration API. Download the latest add-on version in the Add-on Store. For more information about schema updates, refer to Netwrix Auditor Integration API.

3. Use the Add-On

3.1. Prerequisites

Before running Netwrix Auditor Add-on for RADIUS Server, ensure that all the necessary components and policies are configured as follows:

On...	Ensure that...
The Netwrix Auditor Server side	• The Audit Database settings are configured in Netwrix Auditor Server. • The TCP 9699 port (default Netwrix Auditor Integration API port) is open for inbound connections. • The user writing data to the Audit Database is granted the **Contributor** role in Netwrix Auditor. Alternatively, you can grant the **Global administrator** role or add the user to the **Netwrix Auditor Administrators** group. In this case, this user will have the most extended permissions in the product.
The RADIUS server	• The **Remote Event Log Management (RPC)** inbound firewall rule is enabled. • The account collecting RADIUS logon events is member of the **Domain Users** group and have the **Manage auditing and security log** right.
The computer where the script will be executed	• Execution policy for powershell scripts is set to *"Unrestricted"*. Run **Windows PowerShell** as administrator and execute the following command: `Set-ExecutionPolicy Unrestricted` • The user running the script is granted the **write** permission on the script folder—the add-on creates a special .bin file with the last exported event.

3.2. Define Parameters for Add-On

Before running or scheduling the add-on, you must define connection details: Netwrix Auditor Server host, user credentials, etc. Most parameters are optional, the script uses the default values unless parameters are explicitly defined. You can skip or define parameters depending on your execution scenario and security policies. See Choose Appropriate Execution Scenario for more information.

First provide a path to your add-on followed by script parameters with their values. Each parameter is preceded with a dash; a space separates a parameter name from its value. You can skip some parameters—the script uses a default value unless a parameter is explicitly defined.

Parameter	Default value	Description
NetwrixAuditorHost	localhost:9699	Assumes that the add-on runs on the computer hosting Netwrix Auditor Server and uses default port 9699. If you want to run the add-on on another machine, provide a name of the computer where Netwrix Auditor Server resides (e.g., 172.28.6.15, EnterpriseNAServer, WKS.enterprise.local). To specify a non-default port, provide a server name followed by the port number (e.g., WKS.enterprise.local:9999).
NetwrixAuditorUserName	Current user credentials	Unless specified, the add-on runs with the current user credentials. If you want the add-on to use another account to connect to Netwrix Auditor Server, specify the account name in the DOMAIN\username format. **NOTE:** The account must be assigned the **Contributor** role in Netwrix Auditor.
NetwrixAuditorPassword	Current user credentials	Unless specified, the script runs with the current user credentials. Provide a different password if necessary.
NetwrixAuditorPlan	—	Unless specified, data is written to **Netwrix_Auditor_API** database and is not associated with a specific monitoring plan. Specify a name of associated monitoring plan in Netwrix Auditor. In this case, data will be written to a database linked to this plan. **NOTE:** If you select a plan name in the add-on, make sure a dedicated plan is created in Netwrix Auditor, the **Netwrix API** data source is added to the plan and enabled for monitoring. Otherwise, the add-on will not be able to write data to the Audit Database.

Parameter	Default value	Description
RADIUSHost	localhost	Assumes that the script runs on the RADIUS server. If you want to run a script on another machine, provide a name of the computer where RADIUS server resides (e.g., 172.28.6.16, EnterpriseNPS, NPS.enterprise.local).
RADIUSUserName	Current user credentials	Unless specified, the script runs with the current user credentials. If you want the script to use another account to access the RADIUS server, specify the account name in the DOMAIN\username format. NOTE: The account must be a member of the **Domain Users** group and have the **Manage auditing and security log** right.
RADIUSPassword	Current user credentials	Unless specified, the script runs with the current user credentials. Provide a different password if necessary.

3.3. Choose Appropriate Execution Scenario

Netwrix Auditor Add-on for RADIUS Server runs on any computer in your environment. For example, you can run the add-on on the computer where Netwrix Auditor is installed or on your RADIUS server. Depending on the execution scenario you choose, you have to define a different set of script parameters. See Define Parameters for Add-On for more information.

Netwrix suggests the following execution scenarios:

Scenario	Example
The add-on runs on the Netwrix Auditor Server with the current user credentials. Data is collected from a remote RADIUS server and written to a local repository.	`C:\Add-ons\Netwrix_Auditor_Add-on_for_RADIUS_Server.ps1 -RADIUSHost 172.28.6.16`
The add-on runs on the RADIUS server with the current user credentials. Collected data is written to a remote Netwrix Auditor server.	`C:\Add-ons\Netwrix_Auditor_Add-on_for_RADIUS_Server.ps1 -NetwrixAuditorHost 172.28.6.15`

Scenario	Example
The add-on runs on the Netwrix Auditor Server with the current user credentials. Data is collected from a remote RADIUS server with explicitly defined credentials.	`C:\Add-ons\Netwrix_Auditor_Add-on_for_RADIUS_Server.ps1 -RADIUSHost 172.28.6.16 -RADIUSUserName enterprise\NSPuser -RADIUSPassword SuperStrictPassword`
The add-on runs on a remote computer with the current user credentials. Data is collected from a remote RADIUS server and written to a remote Netwrix Auditor repository.	`C:\Add-ons\Netwrix_Auditor_Add-on_for_RADIUS_Server.ps1 -NetwrixAuditorHost 172.28.6.15 -RADIUSHost 172.28.6.16`
The add-on runs on a remote computer. Data is collected from a remote RADIUS server with RADIUS server credentials and is written to a remote Netwrix Auditor repository with Netwrix Auditor credentials.	`C:\Add-ons\Netwrix_Auditor_Add-on_for_RADIUS_Server.ps1 -NetwrixAuditorHost 172.28.6.15 -NetwrixAuditorUserName enterprise\NAuser -NetwrixAuditorPassword NetwrixIsCool -RADIUSHost 172.28.6.16 -RADIUSUserName enterprise\NSPuser -RADIUSPassword SuperStrictPassword`

For security reasons, Netwrix recommends running the script with current user credentials (skipping user credentials for both Netwrix Auditor Server and RADIUS server). Create a special user account with permissions to both servers and use it for running the script.

3.4. Run the Add-On with PowerShell

To run the script with PowerShell

1. On computer where you want to execute the add-on, start **Windows PowerShell**.
2. Type a path to the add-on. Or simply drag and drop the add-on file in the console window.
3. Add script parameters. The console will look similar to the following:

```
Windows PowerShell
Copyright (C) 2014 Microsoft Corporation. All rights reserved.
PS C:\Users\AddOnUser> C:\Add-ons\Netwrix_Auditor_Add-on_for_RADIUS_Server.ps1 -
NetwrixAuditorHost 172.28.6.15 -RADIUSHost 172.28.6.16
```

   NOTE: If the script path contains spaces (e.g., `C:\Netwrix Add-ons\`), embrace it in double quotes and insert the ampersand (**&**) symbol in front (e.g., `& "C:\Netwrix Add-ons\"`).

4. Hit **Enter**.

Depending on the number of events logged in the Security event log the execution may take a while. Ensure the script execution completed successfully.

Every time you run the script, Netwrix Auditor makes a timestamp. The next time you run the script, it will start retrieving new events.

3.5. Automate Add-On Execution

To enure you always have up-to-date information on your RADIUS server logons, Netwrix recommends scheduling a daily task for running the add-on.

To create a scheduled task

1. On the computer where you want to execute the add-on, navigate to **Task Scheduler**.
2. Select **Create Task**.
3. On the **General** tab, specify a task name, e.g., Netwrix Auditor Add-on for RADIUS Server. Make sure the account that runs the task has all necessary rights and permissions.
4. On the **Triggers** tab, click **New** and define the schedule. This option controls how often RADIUS logon activity data is gathered and sent to Netwrix Auditor. Netwrix recommends scheduling a daily task.
5. On the **Actions** tab, click **New** and specify action details. Review the following for additional information:

Option	Value
Action	Set to *"Start a program"*.
Program/script	Input *"Powershell.exe"*.
Add arguments (optional)	Add a path to the add-on in double quotes and specify add-on parameters. For example: `-file "C:\Add-ons\Netwrix_Auditor_Add-on_for_RADIUS_Server.ps1" -NetwrixAuditorHost 172.28.6.15 -RADIUSHost 172.28.6.16`

6. Save the task.

After creating a task, wait for the next scheduled run or navigate to **Task Scheduler** and run the task manually. To do this, right-click a task and click **Run**.

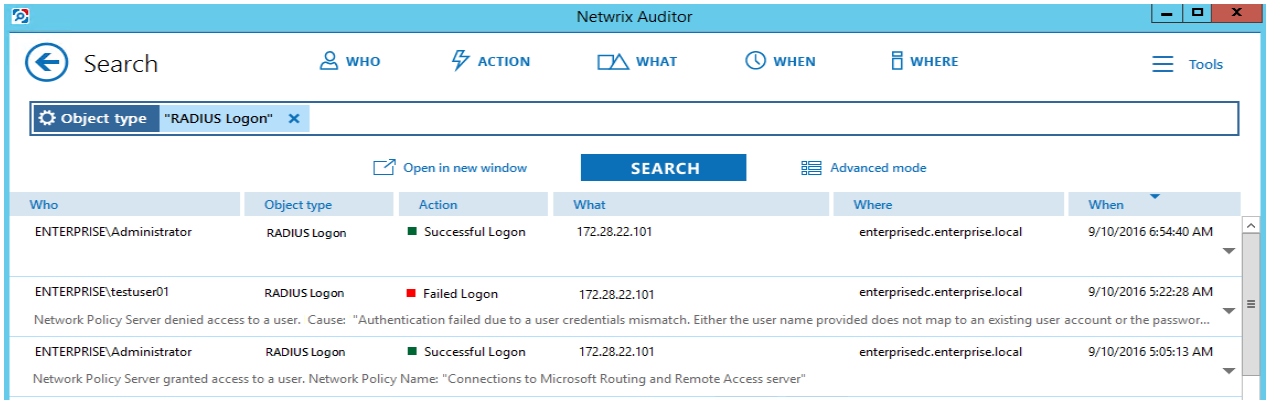
3.6. See Results

Netwrix Auditor provides a convenient interface for reviewing RADIUS server logons. Once the script execution completed, you can start analyzing user activity data with AuditIntelligence search.

To see results

1. Start the Netwrix Auditor client and navigate to **Search**.
2. Click **Search**.

NOTE: You might want to apply a filter to narrow down your search results to the **RADIUS Logon** object type only.



3.7. Create a Custom Report

To speed up data review process and help you find the latest logons faster, Netwrix created an additional script, Netwrix_Auditor_Saved_Search_for_RADIUS_Server_Logons.ps1. It is shipped with the add-on and creates the **RADIUS server logons since yesterday** custom search-based report in the Netwrix Auditor client.

To create a custom report with the script

1. Copy the Netwrix_Auditor_Saved_Search_for_RADIUS_Server_Logons.ps1 script to the Netwrix Auditor Server.
2. Start **Windows PowerShell** and specify a path to the script.
3. Run the script.

NOTE: The user running the script must be a member of the **Netwrix Auditor Administrators** group.

After running the script, the **RADIUS server logons since yesterday** custom report appears in **Reports** → **Custom**. You can access the search instantly or su to it to receive it on a regular basis.

Clicking the saved search tile opens the AuditIntelligence search with preset filters, which shows RADIUS logon activity data for 2 days (yesterday and today).

3.8. Troubleshoot Issues

Error in PowerShell	Resolution
`New-Object : Exception calling ".ctor" with "1" argument(s): "Attempted to perform an unauthorized operation."`	The account specified for collecting events on the RADIUS server does not have sufficient rights and permissions or the password is incorrect. • Check the password for this account. • Select the account that belongs to the **Domain Users** group and has the **Manage auditing and security log** right in domain where the RADIUS server resides.
`New-Object : Exception calling ".ctor" with "1" argument(s): "The RPC server is unavailable"`	The firewall on the RADIUS server blocks the script execution. On the server, navigate to the **Help Protect your computer with Windows Firewall** page, select **Advanced Settings** and enable **Remote Event Log Management (RPC)** inbound rule.

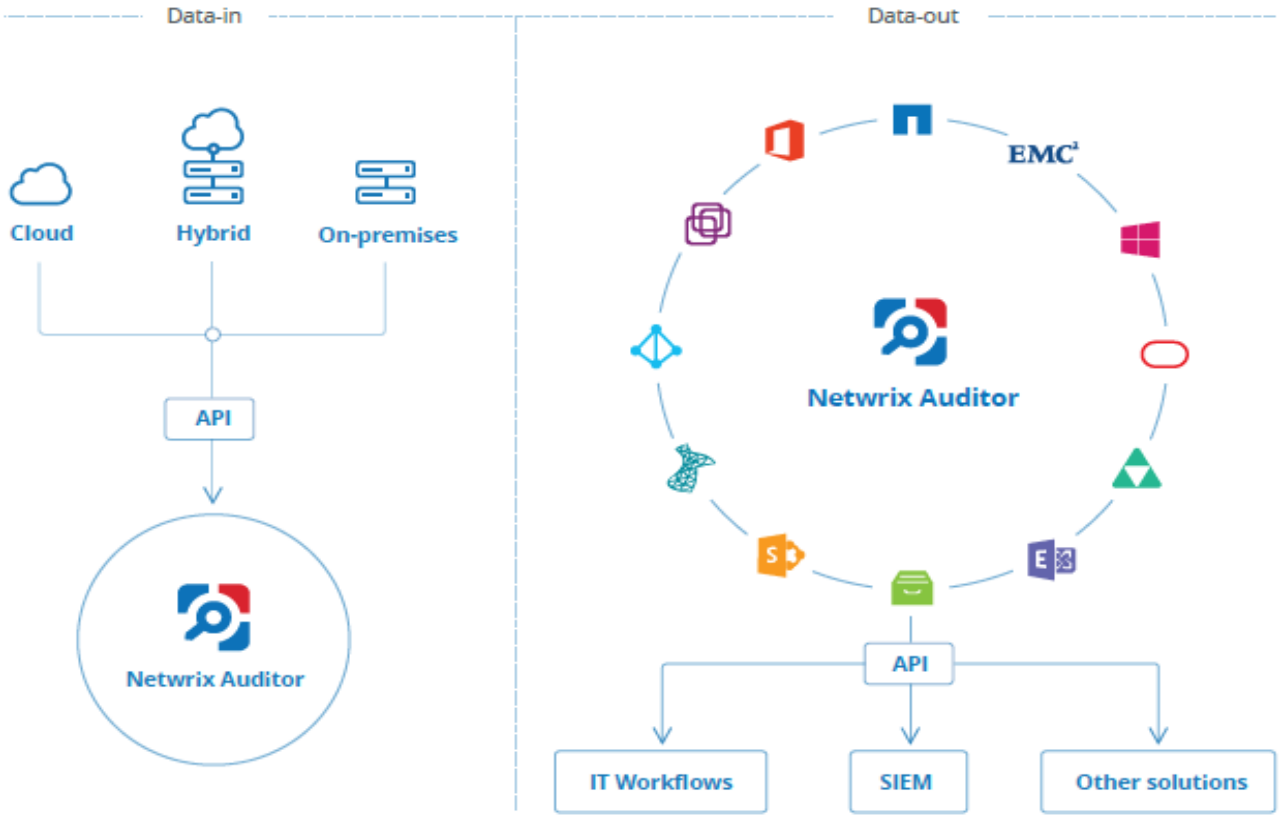
4. Netwrix Auditor Integration API Overview

Netwrix Auditor Add-on for RADIUS Server leverages Netwrix Auditor Integration API. Although you can always use the add-on as is, but Netwrix encourages customers to create their own integration add-ons. The add-ons created based on Netwrix Auditor Integration API capabilities are easily tailored to your specific environment and business requirements.

Netwrix Auditor Integration API—endless integration, auditing and reporting capabilities.

The Netwrix Auditor Integration API provides access to audit data collected by Netwrix Auditor through REST API endpoints. According to the RESTful model, each operation is associated with a URL. Integration API provides the following capabilities:

- **Data in**: Solidify security and meet regulatory compliance standards by enabling visibility into what is going on in any third-party application.
- **Data out**: Further automate your business processes, IT security and operations workflows by enriching third-party solutions with actionable audit data.



Netwrix Auditor Integration API operates with XML- and JSON-formatted Activity Records—minimal chunks of audit data containing information on *who* changed *what*, *when* and *where* this change was made. XML format is set as default.

With Integration API you can write Activity Records to the SQL Server-based Audit Database and access audit data from remote computers. Also, Netwrix prepares add-ons—sample scripts—to help you integrate your SIEM solutions with Netwrix Auditor.

Netwrix does not limit you with applications that can be used with Integration API. You can write RESTful requests using any tool or application you prefer—cURL, Telerik Fiddler, various Google Chrome or Mozilla FireFox plug-ins, etc.

See Netwrix Auditor Integration API Guide for more information.